

Grow Your Own

BEETS, CARROTS, RADISHES, ONIONS, AND SIMILAR CROPS

N.S. MANSOUR

Root and similar crops have a place in every vegetable garden. They are among the first and last vegetables to be harvested. With proper home storage facilities, you'll have a fresh supply all winter and into spring.

These crops also are ideal because they take up little space and can be harvested over a long period of time to provide good eating.

They played an important role in early civilization of Mediterranean Europe, Africa, and Asia, long

before our ancestors learned how to grow their own food.

Today, beets, carrots, radishes, and onions (a bulb crop) are the most widely grown crops in gardens. Parsnips, rutabagas, and turnips, like these other root crops, are easy to grow, especially on raised beds in wide rows. Most of these crops are frost-hardy and will continue to grow if an early frost is followed by warm weather.

Beets may be red, white, or yellow and may vary in shape from oblate to long and cylindrical. The

oblate to globe-shaped, red-rooted types are most popular in the home garden.

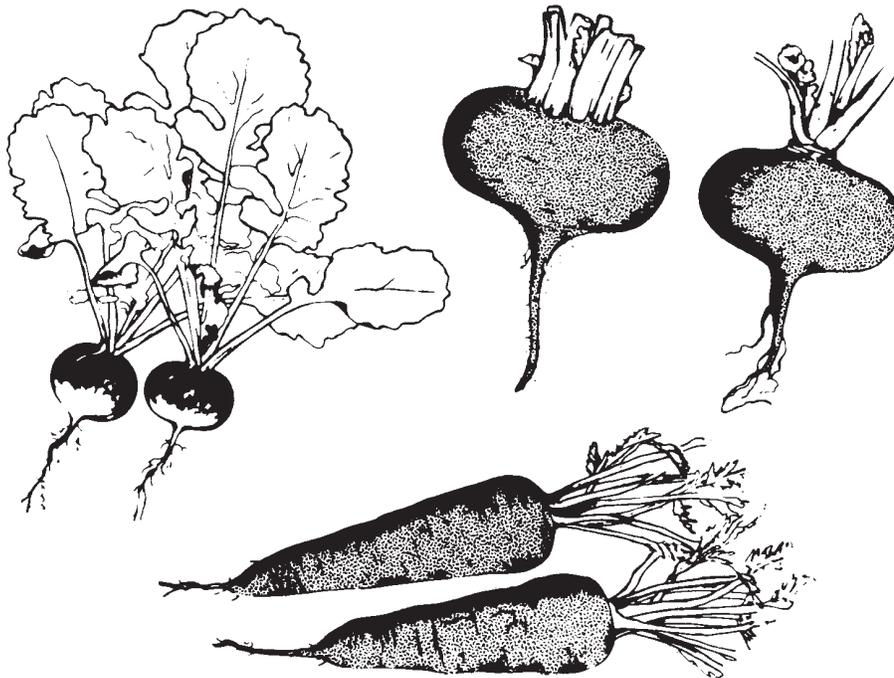
Beet tops are a good source of vitamin A, and the roots are a good source of vitamin C. The tops may be cooked or served fresh as greens; roots may be pickled for salads or cooked whole, sliced, or diced. Beet juice is a basic ingredient of Russian borscht.

Recommended varieties include Early Wonder, Detroit Dark Red, Red Ace, Cylindera, Little Ball, Sweetheart, and Ruby Queen. Yellow beets haven't produced as well as the red beets listed here, but you might try Burpee Golden.

Carrots are a popular root crop. Few other vegetables can match home-grown carrots for vitamin content and sweet flavor. Many excellent varieties are available. Carrots grow best on loose, well-drained soil or raised beds.

Onions may be grown from seed, transplants, or sets. Choice of varieties is very limited when you use transplants or sets.

Red, white, or the standard yellow varieties are available.



N.S. Mansour, Extension vegetable crops specialist, Oregon State University. Adapted for use in Oregon from a University of Idaho Cooperative Extension publication. Replaces EC 875, 877, 880, and 883.



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Yellow onions keep best, followed by red and white ones. Varieties recommended are: (*Yellow*) Rocket, Simcoe, Yula, Golden Cascade; (*Red*) Bennies Red, Carmen Tango, Italian Red Torpedo; (*White*) Blanco Duro, White Delight.

You also may use varieties such as Buffalo, Keep Well, Top Keeper, and Walla Walla Sweet; for over-winter production, plant them in August and harvest the following July.

Celeriac is a type of celery that develops a turnip-like root. It is more common in Europe than in America. Its primary use is as a flavoring in soup, although it can be eaten like any other root crop.

The seed is quite small and requires a finely prepared seedbed, shallow planting, and very careful moisture control until seedlings emerge.

Recommended varieties are Giant Prague, Marble Ball, and Early Paris.

Horseradish rootlets are purchased and planted vertically with the tops just below the surface. The roots are dug before the ground freezes. Side roots then are removed, with the larger ones stored for planting in the spring.

The main roots, after side roots are removed, are stored for consumption. Recommended varieties are Maliner Kren and Improved Bohemian.

Jerusalem artichokes do well on poor soil and may become a weed. Whole tubers are planted in the spring; the crop is dug before the ground freezes. The tubers have a thin skin and shrivel readily in a dry atmosphere.

They store best in the soil but will keep well in a root cellar if packed in moist sawdust. Recommended varieties are Brazilian White and Brazilian Red.

Sweetpotatoes may be grown in warmer areas on a trial basis. Bury a sweetpotato root in a pot or deep pan of moist sand 6 weeks before the last frost date. Keep the pan in a warm window; as the sprouts arise, add more sand to encourage deeper rooting.

Detach these shoots from the root and transplant into the garden.

Use black plastic film to warm the soil.

Dig potatoes immediately after frost kills the vines; cure roots for 5 days at 85°F (29.4°C) and high relative humidity.

After this treatment, store potatoes at 60°F (15.6°C) and 85 percent relative humidity. Curing might be done in crates covered with black plastic film.

Sweetpotatoes may be stored in a heated basement, packed in moist sawdust. Recommended varieties are Centennial, Maryland Golden, and Orlist.

Parsnip is a hardy, full-season annual grown for its long, tapered root that resembles a white carrot. Considered a winter vegetable, its flavor is not fully developed until the roots have been exposed to near freezing temperatures for 2 to 4 weeks in the fall and early winter.

The starch in the parsnip root then changes into sugar, resulting in a sweet, nutlike flavor. Recommended varieties are Improved Hollow Crown and All-America.

Radish is a cool-season vegetable that doesn't do well in the hot summer months. They are grown for the root, which usually is eaten raw, alone or in salads.

Because radishes can grow in partial shade, are easy to grow, and mature quickly, they are well suited to small gardens, flower beds, and containers.

Recommended varieties are Fuego, Cherry Bell, French Breakfast, Faribo White Snowball, Champion, Early White Globe, White Icicle, and Early Scarlet Globe.

Turnips are a root crop of the mustard family. Turnip generally is more common in gardens than the closely related **rutabaga** (also known as Swede or Swede turnip).

Though there are white and yellow forms of each, most turnips are white-fleshed, and most rutabagas are yellow. Both spring and fall crops of turnips are possible, but rutabagas are almost always planted in summer for a late fall harvest.

Turnips and rutabagas produce huge crops of edible roots that you can substitute for potatoes in your diet. Turnip greens are very

popular cooked alone, mixed with diced or sliced turnip roots, or used in equal parts with mustard greens.

The heavy tops of rutabagas can be eaten, but because of their coarse texture, they are less favored than turnip greens.

Recommended turnip varieties are Purple Top White Globe and Tokyo Cross Hybrid. The recommended rutabaga variety is American Purple.

Seedbed

Root crops grow best in sandy loam and peat soils. The addition of organic matter can improve heavy clayey soils. Start seedbed preparation when the soil has sufficient moisture so that you can form a mud ball that will crumble into medium-sized fragments.

Cultivation should mix crop residues and organic matter in the top 7 to 8 inches of soil. It should destroy current weed growth and provide a small, granular-type bed for transplanting.

Over-cultivated soil becomes powdery and has a tendency to crust. The ideal pH for root crop growth is from 6.0 to 7.0, but root crops do well where soil pH ranges from 7.0 to 8.0.

Planting dates

The root crop varieties you select should have early maturity dates. They should have been developed for—and be appropriate to—local weather conditions.

Beets are fairly frost-hardy and can be planted in the garden 30 days before the frost-free date for your area. Although beets grow well during warm weather, the seedlings are established more easily under cool, moist conditions.

Start successive plantings at 3- to 4-week intervals into July for a continuous supply of fresh, tender, young beets. Plant **parsnips** at the same time as beets.

Carrots usually are planted with frost-tolerant vegetables 2 to 4 weeks before the last killing frost in the spring when the soil temperatures are 50°F or above.

Onions. Plant with other frost-tolerant vegetables as soon as the soil can be worked to a good

seedbed. The earlier planted, the larger the onion. In western Oregon, plant in April to mid-May; in eastern Oregon, plant late February or March.

Radishes can be planted from 6 to 8 weeks before the last killing frost. Make successive plantings of short rows every 10 to 14 days. Plant in spaces between slow-maturing vegetables such as tomatoes, peppers, Brussels sprouts, and cabbage.

Turnips are planted at the same time as beets. **Rutabagas** are planted in early summer.

Planting suggestions

Beets need a cool soil to grow and good spacing for sunlight. Their frost tolerance is moderate. They are not harmed by spring and fall frosts, but their roots may become tough during hot weather.

Beet seed actually is a dried fruit or seed ball containing several tiny, true seeds. Heat, drought, or soil crusting may interfere with seed germination and emergence.

Successive plantings 3 weeks apart are needed to ensure a continuous supply of young beets. Beets should have their first planting 2 to 4 weeks before the last killing frost.

Carrots need a cool soil to grow and good spacing for sunlight. Their frost tolerance is moderate. You can use a salt or pepper shaker to scatter seeds in the row. In limited garden areas, banding of carrot seed at 4 to 6 inches width will increase yields.

Because carrot seedlings are extremely tiny, some gardeners mix a few radish seeds with the carrot seeds so they can see the row.

To prevent the soil from forming a crust that would inhibit the seedlings from breaking through, cover the seeds with a light layer of compost (sifted), grass clippings, sawdust, or vermiculite.

A film of clear plastic over the seedbed will speed up germination by warming the soil, prevent crusting, and keep the soil moist. Remove the plastic as soon as the seedlings show.

Onions should be planted to produce four to six plants per foot

of row, depending on the size potential of the variety you use. When you use transplants or sets, don't plant too deep; bulb shape may be affected. Transplants produce the largest bulbs compared to seed planted at the same time.

Parsnip seed is slow to germinate. Some gardeners drop a radish seed every inch to mark the row and to help break the soil crust.

Radish and **turnips** need cool soil. They have excellent frost tolerance. Successive plantings may be made every 10 to 14 days beginning in the spring, as soon as the soil can be worked and before the daytime temperatures are expected to average 80°F or above.

Radish and turnips also can be mixed with carrot, beet, and parsnips to mark the rows of these slower growing vegetables.

Rutabagas should be planted in July and August. This will allow fall harvesting.

Fertilizer

One pound of a preplant fertilizer (20-20-20, for example) for each 100 square feet is adequate for good growth of all these crops.

You can base the amount of fertilizer you apply on a soil test report from a testing laboratory, if you wish.

Plant spacing

Beets should be spaced 2 to 3 inches apart; the row width should be 12 to 18 inches. Start thinning when the beet leaves are about 6 inches tall, and use these beets for greens.

Carrots should be spaced 1 to 2 inches apart; the row width should be 14 to 24 inches. Start thinning carrots when they are about ½ inch in diameter, and use these carrots for cooking.

Onion plants should have rows 12 to 14 inches with plants 2 to 3 inches apart in the row. When you grow them from seed, overseed and thin plants by pulling them out when they have one or two leaves. Since the growing point of an onion is below the soil surface, cutting the plants at the surface will result in regrowth.

Parsnips should be planted two to three seeds per inch of row to ensure a good stand. Thin seedlings to 2 to 4 inches apart. When the plants are too far apart, the roots become large, and the edible portion has a woody, fibrous texture.

Radishes should be thinned to ½ to 1 inch between plants. **Rutabagas** should be thinned to 6 inches apart when they are 2 inches high. **Turnips** should be thinned to 2 to 4 inches when they are 4 inches high.

Cultivation

Cultivation should be shallow when necessary to remove other plant competition. Deep cultivation close to the plants will destroy much of the root system and reduce yield and quality.

Watering

Root crop root depth averages up to 6 inches. Their crop stress point is 60 percent of the total water-holding capacity. You have watered enough if you can press a handful of soil into a firm ball and your finger marks make an imprint on the ball.

Your hand will feel damp but not moist, the soil doesn't stick to your hand, and the ball is pliable. When broken, the ball should shatter or fold into medium-sized fragments.

When you use sprinklers, put out some cans so that you can see when you've applied about 1½ inches of water.

Insects

These insects may be a problem:

Beets—alfalfa loopers, armyworms, cutworms, flea beetles, two-spotted mites, variegated cutworms, and zebra caterpillars.

Carrots—aphids, carrot rust flies, garden symphylans, wireworms, sixspotted leafhoppers, and slugs.

Onions can be damaged by onion maggots early in the season and by thrips later.

Parsnips—relatively free of insects.

Radish—cabbage aphids, turnip

aphids, cabbage maggots, cutworms, armyworms, black cutworms, diamondback moths, flea beetles, and wireworms.

Rutabaga—cabbage maggots, aphids, cabbage worms, and striped flea beetles.

Turnips—cabbage aphids, turnip aphids, cabbage root maggots, cutworms, armyworms, black cutworms, diamondback moths, flea beetles, and wireworms.

Diseases

Beets—boron deficiency, curly top (eastern Oregon), damping-off, powdery mildew, downy mildew, leaf spot, and cyst nematode. If curly top is a problem, grow Parma Globe or Parma Red Globe.

Carrots—aster yellows, cottony soft rot, damping-off, leaf spot, leaf blight, motley dwarf, root-knot nematode, soft rot, and violet root rot.

Onions can be damaged by downy mildew and *Alternaria* leaf fungus. Curing the bulbs well at harvest and before storage helps control botrytis neck rot.

Parsnips—relatively free of diseases.

Radish—black rot, *Fusarium* yellows.

Rutabaga—black root rot and powdery mildew.

For more information, see FS 242, *Discourage Plant Diseases in Your Home Garden* (no charge for single copy; order from Publication Orders, Extension and Station Communications, Oregon State University, 422 Kerr Administration, Corvallis, OR 97731-2119; also available on the Web at eesc.orst.edu).

Harvesting

You can harvest as soon as the roots are the size of your little finger. This thinning will provide more room for the remaining plants. Harvest the remainder before they become woody or freeze in the fall.

Beets can be harvested as soon as the roots are large enough to use. Early harvest can thin the plants and provide more room for remaining plants. Small beets with tops can be used for greens.

Beets are ready to be pulled up for their roots 8 to 9 weeks after seeds are sown. Roots are most tender when less than 2 inches across.

Onions. Lift the bulbs after the tops have fallen and begun to yellow. Allow to dry on the surface for 10 to 14 days until tops and necks are completely dry. Store in mesh bags or boxes that are slatted to allow good air flow. Keep in a cool, dry place.

Parsnips should remain in the ground until the tops freeze in late fall. At this time, the roots may be harvested and stored or left in the garden to be used as needed.

Gardeners who don't have storage facilities often mulch parsnips with straw or hill over the crown with soil so that they can be dug throughout the winter.

You can harvest **radishes** as soon as the roots reach edible size (1 to 2 inches) and before they become tough and pithy. They normally mature in 20 to 30 days.

Rutabagas usually are harvested after they are 3 or more inches thick. They have a long-keeping quality and can be left in the ground after they reach usable size or dug and stored in a cellar.

Turnips can be harvested as soon as the roots reach edible size (2 to 3 inches) and before becoming

bitter, fibrous, and pithy. They normally mature in 45 to 60 days.

Early harvests can thin to provide more room for the plants remaining. Pull or cut off tops above the crown.

Storage

Beets should be harvested for storage before they become woody. Pull beets and cut off the tops, leaving 1 to 1½ inches of top above the crown. To see if the roots are ready for use, push the soil away from the top of the beet and check its size. Store like carrots.

Carrots can be stored in a pit, storage cellar, or covered row. Storage temperature should be as near 32°F as possible. Humidity should be moist. Length of storage normally is during fall and winter.

Turnips can be harvested as soon as the roots reach edible size (2 to 3 inches) and before becoming bitter, fibrous, and pithy. They normally mature in 45 to 60 days.

Parsnips should be stored like beets and carrots. **Rutabagas** keep well in refrigeration, in an outdoor pit, or in an underground cellar like turnips.

Storage life of **turnips** can be extended into the fall and winter by leaving them in the ground and covering with a mulch to prevent freezing. For pit storage, the temperature should be as near 32°F as possible under moist air conditions. Both turnips and rutabagas may be dipped in warm wax to prevent loss of moisture.

Storage life of **radishes** is limited to 5 to 6 days in the refrigerator if stored in plastic bags with holes punched for air space. Remove tops at ½ inch from the radish, and clean the roots before storage. Some gardeners store radishes in moist sawdust, but most radishes are used as a garden-fresh relish.

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